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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Peter Falb

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EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

03/03/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,977	Applicant(s) FALB ET AL.	
	Examiner Shogo Sasaki	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/28/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7, 24, 25, 29, 32, 36, 37, 45, 47-49, 52, 56, 59, 60, 66, 73, 74, 87, 96 and 170-173 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/9/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 1,7,24,25,29,32,36,37,45,47-49,52,56,59,60,66,73,74,87,96 and 170-173.

DETAILED ACTION

1. Amendments to the claims are acknowledged. Cancellations of claims 2-6, 8-23, 26-28, 30, 31, 33-35, 38-44, 46, 50, 51, 53-55, 57, 58, 61-65, 67-72, 75-86, 88-95 and 97-169 are also acknowledged.

Claim Objections

2. Regarding claim 25, the recitation "said dual clamp element connects said liquid reservoir to said metering chamber" renders said claim unclear. The specification does not disclose that the clamping device acts as a connector/bridge for the liquid reservoir and the metering chamber. It appears that the dual clamping device is merely a two-piece housing or a part of housing (44) for the liquid reservoir and the part of the metering chamber assembly, which may inherently secure the assembly in place (p10-11), but it is not an intermediary element placed between said liquid reservoir and said metering chamber as implied by the recitation. The figures 1 and 2 show the liquid reservoir and the metering chamber connected without said dual clamping device.

3. Claim 171 is objected to under 37 CFR 1.75(c) as being of improper dependent form because it depends from itself. See MPEP § 608.01(n). Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. For the purpose of this office action, claim 171 was assumed to depend from claim 170. Appropriate correction is required.

Claim Interpretations

4. Claim 1 and 7 do not positively set forth "a rigid wall" as part of the claimed subject matter. For the purpose of this Office action said claims were interpreted to mean a liquid dispensing apparatus comprising: a metering chamber comprising a rigid wall... a flexible diaphragm configured conform to said rigid wall of said metering chamber...

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Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 7, 29, 32, 36, 37, 45, 47-49, 52, 56, 59, 60, 66, 73, 74, 87, 96 and 170-173 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 2711134) in view of Loeffler (US 6092695).

Regarding claims 1, 7, 29, 32, 36, 37, 45, 47-49, 52, 56, 59, 66, 73, 74, 87 and 96, Hughes (Fig. 1-3; and the entire disclosure) disclose a fluid flow regulation device comprising: a metering chamber with a wall (16) comprising a liquid introduction

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element (60); an internal diaphragm compressor (30); an internal mechanical stop (housing 11/22); a spring as an uncompression element (45); a plunger element (19, 20, 32, 31 and 42) for horizontal actuation of the diaphragm; and unidirectional inlet valve (62) placed at the liquid introduction element and an outlet valve (72) placed at a liquid exit element (70). The diaphragm is capable of substantial conformation to a wall of said metering chamber (See Figures). The actuation of the plunger may be performed manually (column 3, lines 38-75). The mechanical stop (11/22) defines the extent of uncompressed or compressed state (See Figure 3). Unless the actuator (80 and 85) is wound/unwound, the diaphragm of Hughes may stay at a compressed state, or vice versa. The recitation "a liquid flow deflection element," is a kink/bent in the flow path leading from the reservoir outlet to the metering chamber. The device of Hughes includes such means (51). The outlet valve has a valve disk (The central shaft portion of 72); a valve retainer (the part of the housing/body holding the valve in place); and a valve membrane (the umbrella portion of 72), which are arranged to form a seal.

Hughes does not explicitly disclose that the device may be connected: [claims 1 and 7] a liquid reservoir (The examiner asserts that connecting a liquid reservoir to a liquid input line of a fluid regulating device is obvious.); [claim 29] an automated system; [claim 59] a seal between the reservoir and liquid introduction element; [claim 66] a housing around the reservoir; or [claims 73 and 74] wherein the reservoir is interchangeable or refillable.

Loeffler discloses interchangeable liquid dispensing cartridge pump assemblies suitable for dispensing reagent in an automatic system comprising a compressible metering chamber suspended from a flexible reservoir bag mounted within a rigid housing (abstract; Figs 1-5; and columns 4-8). Unidirectional valves between the reservoir and metering chamber and at a lower end of a metering chamber are formed of flexible membranes having apertures which close against conical projections on rigid disks (id). The housing of the metering chamber is compressible/decompressible and acts as a diaphragm (Fig. 1-5). The horizontally actuated plunger may electromechanically activate the compressible/decompressible the housing of the metering chamber (Fig. 1c, 2b and 5b; and column 4-8). The unidirectional outlet valve

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comprises a small, inflexible valve disk 17 and 18, and a flexible elastomeric membrane 15 and 25, and seals the outlet (Fig. 2a and 2b; and column 4-8). The seal (14; or the inlet valve assembly) is provided between the reservoir and the chamber. The uncompression element is the force that can uncompress or displace a diaphragm to an uncompressed state, which in this case is the resiliency of the chamber wall (diaphragm).

It would have been obvious to one having ordinary skill in the art at the time of the invention to add a replaceable and refillable liquid reservoir of Loeffler to the liquid inlet of Hughes. The skilled artisan would have been motivated to combine a fluid containment means taught by Loeffler with a fluid moving means of Hughes, for the purpose of controlling the dispensing of fluids from a fluid reservoir. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding claim 60, modified Hughes discloses all of the limitations as set forth above. Modified Hughes does not explicitly disclose an o-ring or a flange o-ring as a sealing means. However an o-ring or a flange o-ring is a well known sealing device. Choosing an o-ring or a flange o-ring is an obvious choice. The claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Regarding claims 170-173, modified Hughes discloses all of the limitations as set forth above. The umbrella valves of modified Hughes are not in orthogonal arrangement.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of modified Hughes to arrange valves in orthogonal fashion, since change in configuration is generally recognized as being within the level of ordinary skill in the art. In this instance, the claimed configuration appears to be selected for mere convenience in designing the liquid dispensing device.

The claims do not even structurally limit that the flow of fluid resulting in such an arrangement results in directional change and etc.

9. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 2711134) in view of Loeffler (US 6092695), and in further view of Bogen et al. (US 6180061).

Regarding claims 24 and 25, modified Hughes discloses all of the limitations as set forth above.

Modified Hughes does not explicitly teach that the reservoir housing or a part of the reservoir housing (a dual clamp) connects/connected to the bag and the part of the metering chamber. The reservoir connected to the metering chamber is suspended within the reservoir housing.

Bogen et al. disclose (Fig. 15 and 16) a similar liquid dispenser comprising a collapsible liquid reservoir; a compressible metering chamber with inlet and outlet valves; a horizontally actuated plunger; and a housing which encases the collapsible liquid reservoir and the compressible metering chamber (column 9, line 50-column 10, line 48). The open end of the collapsible reservoir fits snugly about an inlet end of a metering chamber tube 616 and is clamped and thus sealed to the tube by plates (618), which also serves as a closure to the housing (column 9, line 57-61).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of modified Hughes to fix the collapsible liquid reservoir and the compressible metering chamber by holding them with housing pieces/clamps as taught by Bogen et al., for the purpose of securing the collapsible liquid reservoir and the compressible metering chamber relative to the housing and the automated system.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 2711134) in view of Loeffler (US 6092695), and in further view of Krawzak et al. (US 5232664: Fig. 1, 4 and 5); Rokugawa (US 4844868: Fig. 4 and 5); Arway (US

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4555719: Fig. 4); Okuyama et al. (US 5433351: Fig. 3, 4 and 6); or Danby et al. (US 4846636: Fig. 2 and 3).

Regarding claim 1, modified Hughes discloses all of the limitations as set forth above.

Modified Hughes may not explicitly teach “a liquid flow deflection element,” which is a kink/bent in the flow path leading from the reservoir outlet to the metering chamber.

Krawzak et al. (US 5232664: Fig. 1, 4 and 5); Rokugawa (US 4844868: Fig. 4 and 5); Arway (US 4555719: Fig. 4); Okuyama et al. (US 5433351: Fig. 3, 4 and 6); or Danby et al. (US 4846636: Fig. 2) all disclose liquid dispensers comprising a liquid reservoir or a compressible liquid reservoir; a compressible (via compression of air inside the chamber or by providing a chamber having compressible wall) metering chamber with inlet and outlet valves; a plunger; and a non linear flow path leading from the reservoir outlet to the metering chamber inlet.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention of Hughes to incorporate a non linear flow path, since change in configuration is generally recognized as being within the level of ordinary skill in the art. In this instance, the disclosed configuration or a claimed kink in the flow path appears to be selected for mere convenience in designing the liquid dispensing device.

Response to Arguments

11. Applicant's arguments filed 10/28/2009 have been fully considered.
12. The objections to claims 73 and 74 are withdrawn. The objection to claim 25 is partially maintained. Applicant did not fully respond to the objection to claim 25. See paragraph 2 above.
13. The 112(2) rejections of claims 1, 7, 29, 37, 56 and 96 are withdrawn.
14. Applicant's arguments with respect to the prior art rejections have been considered but are moot in view of the new ground(s) of rejection.

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15. The examiner suggests applicant to positively claim a metering chamber comprising a rigid wall prior to the new limitation "configured to conform to a rigid wall of..." See paragraph 3 above.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shogo Sasaki whose telephone number is (571)270-7071. The examiner can normally be reached on Mon-Thur, 10:00am-6:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797

2/26/2010